

MEADOWS MOBILE PARK (PWS 4200031) SOURCE WATER ASSESSMENT FINAL REPORT

March 5, 2002



State of Idaho Department of Environmental Quality

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Executive Summary

Under the Safe Drinking Water Act Amendments of 1996, all states are required by the U.S. Environmental Protection Agency to assess every source of public drinking water for its relative sensitivity to contaminants regulated by the Act. This assessment is based on a land use inventory of the designated assessment area and sensitivity factors associated with the wells and aquifer characteristics.

This report, *Source Water Assessment for Meadows Mobile Park, Mountain Home, Idaho*, describes the public drinking water system, the boundaries of the zones of water contribution, and the associated potential contaminant sources located within these boundaries. This assessment should be used as a planning tool, taken into account with local knowledge and concerns, to develop and implement appropriate protection measures for this source. **The results should not be used as an absolute measure of risk and they should not be used to undermine public confidence in the water system.**

The Meadows Mobile Park drinking water system consists of two wells. Both wells have a high susceptibility to all potential contaminant categories: inorganic compounds (IOCs), volatile organic compounds (VOCs), synthetic organic compound (SOCs) and microbial contaminants. A road lies within 50 feet of Well #2 giving an automatic high susceptibility score to all potential contaminant categories for that well. The high hydrologic sensitivity and multiple potential contaminant sources that can add leachable chemicals to the aquifer contributed to the overall susceptibility for Well #1.

No SOCs or VOCs have been detected during any water chemistry tests for either well. No coliform bacteria have been detected in either of the wells. The IOCs chromium, fluoride, and nitrate have been detected, but at levels below the current maximum contaminant levels (MCLs) set by the U.S. Environmental Protection Agency (EPA). However, the irrigated agricultural land has led to the area being rated as high for county level nitrogen fertilizer use, county level herbicide use, and total county level ag-chemical use.

This assessment should be used as a basis for determining appropriate new protection measures or re-evaluating existing protection efforts. No matter what ranking a source receives, protection is always important. Whether the source is currently located in a “pristine” area or an area with numerous industrial and/or agricultural land uses that require surveillance, the way to ensure good water quality in the future is to act now to protect valuable water supply resources. If the system should need to expand in the future, new well sites should be located in areas with as few potential sources of contamination as possible, and the site should be reserved and protected for this specific use.

For the Meadows Mobile Park, drinking water protection activities should first focus on correcting any deficiencies outlined in the sanitary survey (an inspection conducted every five years with the purpose of determining the physical condition of a water system’s components and its capacity). No application or storage of herbicides, pesticides, or other chemicals is allowed within 50 feet of a public water system well. The Meadows Mobile Park may want to consider minimizing the use of the road that lies within 50 feet of Well #2 to avoid accidental spills or releases that may contaminate the well. Also, assure that the wellhead is above grade from the road to reduce the possibility of contamination from surface runoff. Should microbial contamination become a problem, appropriate disinfection practices would need to be maintained for the system. Since the delineations underlie urban and residential land, storm water drainage may be an important consideration. Much of the designated protection areas are outside the direct jurisdiction of the Meadows Mobile Park, making collaboration and partnerships with state and local agencies and industry groups critical to the success of drinking water protection.

Due to the time involved with the movement of ground water, drinking water protection activities should be aimed at long-term management strategies even though these strategies may not yield results in the near term. A strong public education program should be a primary focus of any drinking water protection plan as the delineations contain some urban and residential land uses. Public education topics could include proper lawn and garden care practices, household hazardous waste disposal methods, proper care and maintenance of septic systems, and the importance of water conservation to name but a few. There are multiple resources available to help communities implement protection programs, including the Drinking Water Academy of the U.S. EPA. As there is a transportation corridor (Highway 67) through the delineations, the Idaho Department of Transportation should be involved in protection activities. Drinking water protection activities for agriculture should be coordinated with the Idaho State Department of Agriculture, the Soil Conservation Commission, the Elmore Soil Conservation District, and the Natural Resources Conservation Service.

A community must incorporate a variety of strategies in order to develop a comprehensive drinking water protection plan, be they regulatory in nature (i.e. zoning, permitting) or non-regulatory in nature (i.e. good housekeeping, public education, specific best management practices). For assistance in developing protection strategies please contact the Boise Regional Office of the Idaho Department of Environmental Quality or the Idaho Rural Water Association.

SOURCE WATER ASSESSMENT FOR MEADOWS MOBILE PARK, MOUNTAIN HOME, IDAHO

Section 1. Introduction - Basis for Assessment

The following sections contain information necessary to understand how and why this assessment was conducted. **It is important to review this information to understand what the rankings of this assessment mean.** Maps showing the delineated source water assessment area and the inventory of significant potential sources of contamination identified within that area are included. The list of significant potential contaminant source categories and their rankings used to develop the assessment are also included.

Background

Under the Safe Drinking Water Act Amendments of 1996, all states are required by the U.S. Environmental Protection Agency (EPA) to assess every source of public drinking water for its relative susceptibility to contaminants regulated by the Safe Drinking Water Act. This assessment is based on a land use inventory of the delineated assessment area and sensitivity factors associated with the wells and aquifer characteristics.

Level of Accuracy and Purpose of the Assessment

Since there are over 2,900 public water sources in Idaho, there is limited time and resources to accomplish the assessments. All assessments must be completed by May of 2003. An in-depth, site-specific investigation of each significant potential source of contamination is not possible. **Therefore, this assessment should be used as a planning tool, taken into account with local knowledge and concerns, to develop and implement appropriate protection measures for this source. The results should not be used as an absolute measure of risk and they should not be used to undermine public confidence in the water system.**

The ultimate goal of the assessment is to provide data to local communities to develop a protection strategy for their drinking water supply system. The Idaho Department of Environmental Quality (DEQ) recognizes that pollution prevention activities generally require less time and money to implement than treatment of a public water supply system once it has been contaminated. DEQ encourages communities to balance resource protection with economic growth and development. The decision as to the amount and types of information necessary to develop a drinking water protection program should be determined by the local community based on its own needs and limitations. Wellhead or drinking water protection is one facet of a comprehensive growth plan, and it can complement ongoing local planning efforts.

Section 2. Conducting the Assessment

General Description of the Source Water Quality

The public drinking water system for the Meadows Mobile Park is comprised of two ground water wells that serve approximately 175 people through 82 connections. Both wells are located in Elmore County on the southwest side of Mountain Home. Well #1, the backup well, is located approximately 250 feet northwest of Well #2, approximately 400 feet east of a water tower, and approximately one-fourth mile south of Highway 67. Well #2 is located approximately 700 feet east of the water tower and approximately one-third of a mile south of Highway 67 (Figure 1). A hypochlorinator is used for disinfection.

No current water chemistry problems exist for the wells of the Meadows Mobile Park. No SOC's or VOC's have been detected during any water chemistry tests for either of the wells. No coliform bacteria have been detected in either of the wells. The IOC's chromium, fluoride, and nitrate have been detected, but at levels below the current MCLs set by the U.S. EPA. However, the irrigated agricultural land has led to the area being rated as high for county level nitrogen fertilizer use, county level herbicide use, and total county level ag-chemical use.

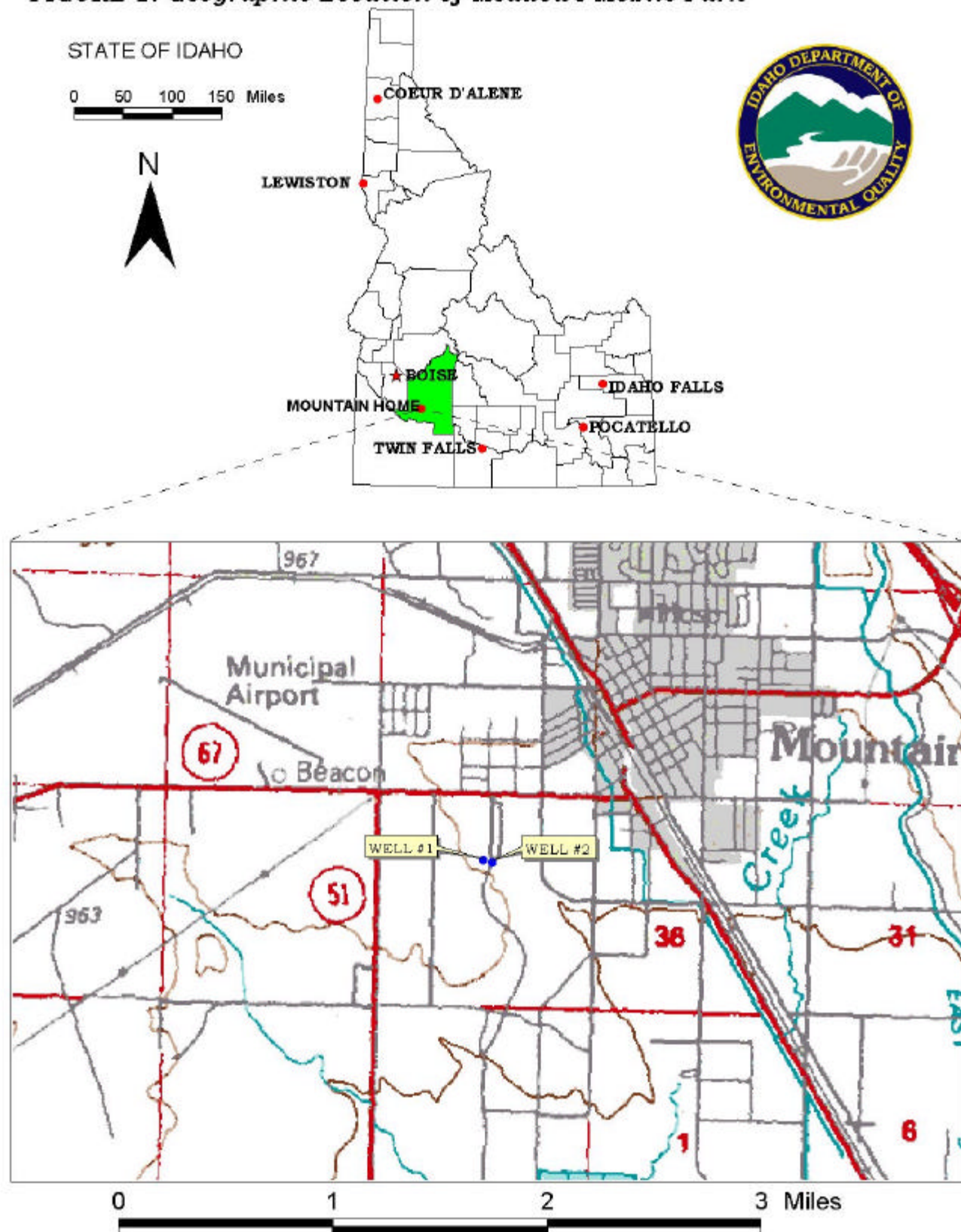
Defining the Zones of Contribution – Delineation

The delineation process establishes the physical area around a well that will become the focal point of the assessment. The process includes mapping the boundaries of the zone of contribution into time-of-travel (TOT) zones (zones indicating the number of years necessary for a particle of water to reach a well) for water in the aquifer. DEQ contracted with BARR Engineering to perform the delineations using a combination of MODFLOW and a refined analytical element computer model approved by the EPA in determining the 3-year (Zone 1B), 6-year (Zone 2), and 10-year (Zone 3) TOT for water associated with the Boise Valley aquifer in the vicinity of the Meadows Mobile Park. The computer models used site specific data, assimilated by BARR Engineering from a variety of sources including the Meadows Mobile Park well logs, other local area well logs, and Hydrogeologic reports (detailed below).

The Mountain Home Plateau is a broad, flat plateau, which slopes gently towards the southwest. The plateau is broken by volcanic structures – crater rings, cinder cones, and shield volcanoes. The plateau generally is above 3,000 feet in altitude, except in the extreme western part. All streams draining the plateau are ephemeral, flowing south toward the Snake River. The larger streams draining the Danskin Mountains to the north are fed by springs in the Tertiary volcanics and Cretaceous granites. Characterized by hot, dry summers and cold winters, the climate of the plateau is semi-arid. Average annual precipitation ranges from nine inches on the plateau to about 23 inches in the mountains (Norton et al., 1982).

The major geologic units in the Mountain Home Plateau are: 1) alluvium and younger terrace gravels, 2) Snake River Group, 3) Idaho Group, 4) Idavada Volcanics, and 5) Idaho Batholith. The basalts are considerably thicker in the northern section of the study area. Two of the formations of the Idaho Group, the Glens Ferry Formation and the Bruneau, are the main aquifer systems (Ralston and Chapman, 1968). The basalts of the Bruneau Formation thin rapidly to the east and to the south. Two parallel northwest trending faults cut through the area. An apparent third fault, trending east from Cinder Cone Butte, bisects one of the northwest faults near Cleft. Several volcanic structures are

FIGURE 1. Geographic Location of Meadows Mobile Park



present on the plateau including Crater Rings, Cinder Cone Butte, and Lockman Butte (Norton et al., 1982). There are two main aquifers in the Mountain Home area: 1) a shallow, perched system beneath Mountain Home and 2) a deeper, regional system.

The perched system underlies approximately 38,000 acres extending from about 10 miles south to 4 miles north of the City of Mountain Home with a 4 mile width in the area of the City (Young, 1977). For the most part, ground water in the perched system is in the clay, silty, sand, and gravel layers of the Quaternary Alluvium. Depth to water in the shallow system can be less than 10 feet but varies considerably along the limits of the perched system as the water moves vertically down the regional system (Norton et al., 1982). Recharge to the perched system occurs from Rattlesnake and Canyon Creeks as well as seepage from Mountain Home Reservoir and the canals and laterals that distribute the water. Natural discharge from the perched system occurs mainly as downward percolation to the regional system and as spring flow at Rattlesnake Spring near the Snake River Canyon rim. The direction of flow in the perched ground water system is towards the southwest.

The deeper, regional aquifer supplies ground water to the large irrigation wells and municipal wells for Mountain Home and the Air Force base. The major rock types are basalts of the Bruneau Formation, Idaho Group, and poorly consolidated detrital material and minor basalt flows of the Glenns Ferry Formation, Idaho Group. Well yields from the basalts of the Bruneau Formation range from 10 to 3500 gallons per minute (gpm). The range of the well yields for the Glenns Ferry Formation is three to 350 gpm. The Bruneau Formation thins rapidly towards the east where the Glenns Ferry Formation becomes the major source of ground water (Norton et al., 1982).

The Glenns Ferry Formation, a thick intertonguing deposit of lake and stream sediments, is the primary aquifer in the eastern portion of the area. Due to the fine-grained nature of the sediments, the permeability and yield to wells is generally low. The formation is composed of tan, gray, and white clay, silt, and fine to medium sand (Ralston and Chapman, 1968). The formation has been noted as being 2000 feet thick near Glenns Ferry (Malde and Powers, 1962).

The sediments and basalt of the Bruneau Formation are the primary aquifers in the Mountain Home area. The jointing, fracturing, and vesicular character of the basalts causes them to be very permeable. The majority of ground water withdrawal from the formation is from deeper interflow zones and a thin but extensive series of sand beds just below the lower basalt unit. The unit has approximately 1500 feet of lake and stream sediments with numerous basalt interbeds. The basalts tend to be dark gray to black when fresh but weather to a reddish gray-brown color. Most of the interflow zones contain large quantities of glassy cinders and some ash (Ralston and Chapman, 1968).

Ralston and Chapman (1968 and 1970) found that recharge to the ground water system in the eastern portion of the Mountain Home Plateau is limited due to low amounts of precipitation, relatively impermeable material in the area of most precipitation, and high evapotranspiration rates. Recharge to the regional system occurs as downward percolation of precipitation that falls on the mountains, losses from intermittent stream flows, and from downward percolation from the perched system. Discharge from the regional system occurs as spring flow, underflow to the Snake River, and pumpage.

In general, the direction of ground water flow is towards the southwest with a southern component in the southeast and a western component in the northwest. Low permeability along the apparent east-west trending fault through Cleft limits the flow to the north. The ground water elevation is 70 to 165 feet higher on the south side of the fault (Norton et al., 1982).

The delineated source water assessment areas for the Meadows Mobile Park can best be described as northeastward trending corridors approximately 0.6 miles long and one-eighth mile wide (Figures 2 and 3). The delineations of both wells extend from the wellheads, crossing Highway 67 in the 10-year time-of-travel (TOT) zone. The actual data used by BARR Engineering in determining the source water assessment delineation areas are available from DEQ upon request.

Identifying Potential Sources of Contamination

A potential source of contamination is defined as any facility or activity that stores, uses, or produces, as a product or by-product, the contaminants regulated under the Safe Drinking Water Act and has a sufficient likelihood of releasing such contaminants at levels that could pose a concern relative to drinking water sources. The goal of the inventory process is to locate and describe those facilities, land uses, and environmental conditions that are potential sources of ground water contamination. The locations of potential sources of contamination within the delineation areas were obtained by field surveys conducted by DEQ and from available databases.

Land use within the immediate area of the wells is residential and urban while the surrounding area of the Meadows Mobile Park wellheads consist of urban and irrigated agricultural land.

It is important to understand that a release may never occur from a potential source of contamination provided they are using best management practices. Many potential sources of contamination are regulated at the federal level, state level, or both to reduce the risk of release. Therefore, when a business, facility, or property is identified as a potential contaminant source, this should not be interpreted to mean that this business, facility, or property is in violation of any local, state, or federal environmental law or regulation. What it does mean is that the potential for contamination exists due to the nature of the business, industry, or operation. There are a number of methods that water systems can use to work cooperatively with potential sources of contamination, including educational visits and inspections of stored materials. Many owners of such facilities may not even be aware that they are located near a public water supply well.

Contaminant Source Inventory Process

A two-phased contaminant inventory of the study area was conducted in October and November 2001. The first phase involved identifying and documenting potential contaminant sources within the Meadows Mobile Park source water assessment areas (Figures 2 and 3) through the use of computer databases and Geographic Information System maps developed by DEQ. The second, or enhanced, phase of the contaminant inventory involved contacting the operator to identify and add any additional potential sources in the area.

The delineated source water areas for both wells contain Highway 67 in the 10-year TOT. This source can potentially add IOCs, VOCs, and SOCs to the aquifer. The delineation for Well #1 contains one leaking underground storage tank (LUST), some underground storage tanks (USTs), a gas station, and a plumbing supply business (Table 1). The delineation for Well #2 includes a UST and a gas station (Table 2). Additionally, the 1997 Ground Water Under Direct Influence (GWUDI) field survey shows that Well #1 is within 400 feet of an automobile junkyard and 600 feet of sewage lagoons. It also shows that Well #2 is within 50 feet of a road. Though these sources are not listed in the tables, they were used in assessing the susceptibility of the wells.

Figure 2. Meadows Mobile Park Delineation Map and Potential Contaminant Source Locations

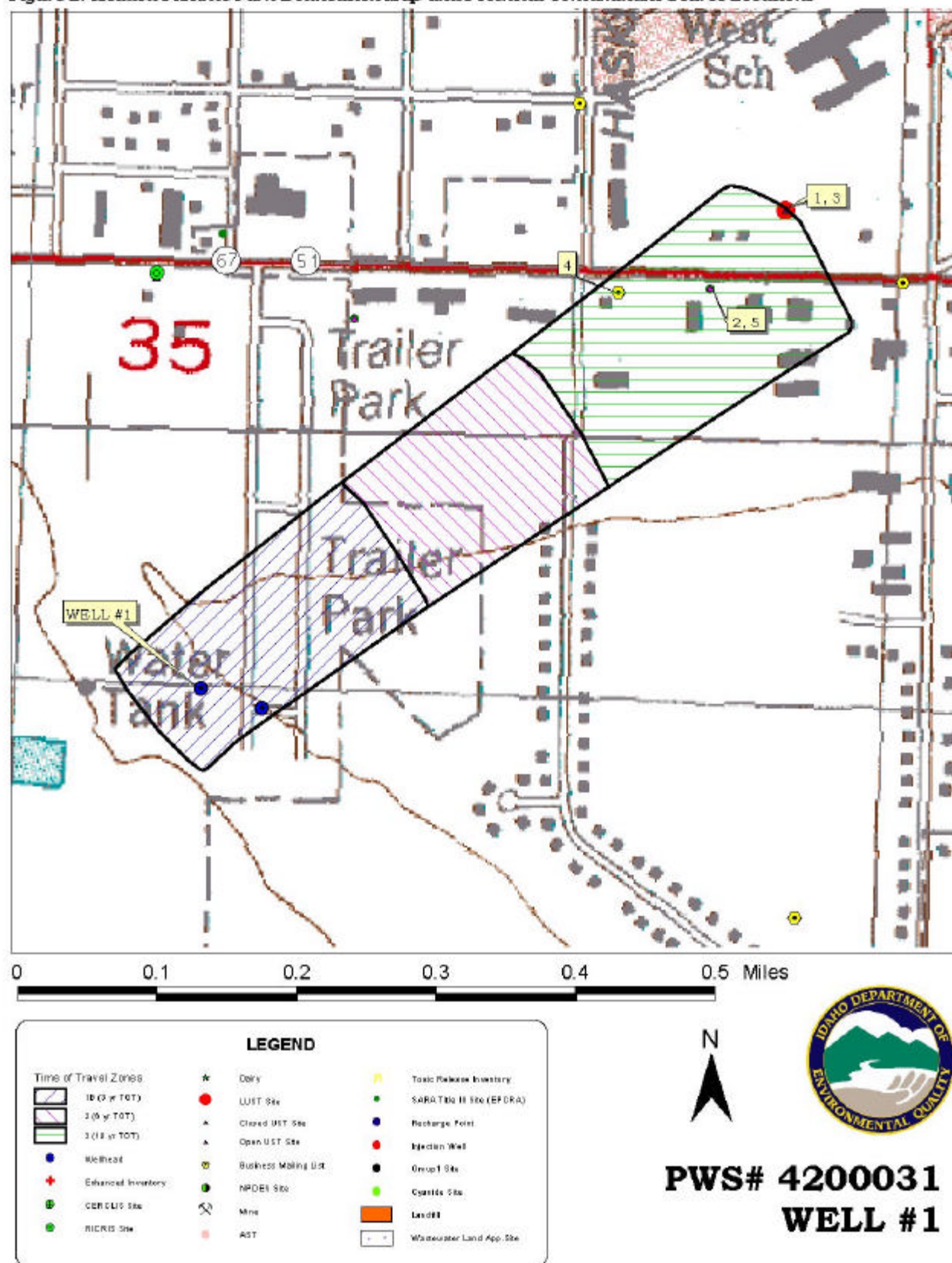


Figure 3. Meadows Mobile Park Delineation Map and Potential Contaminant Source Locations

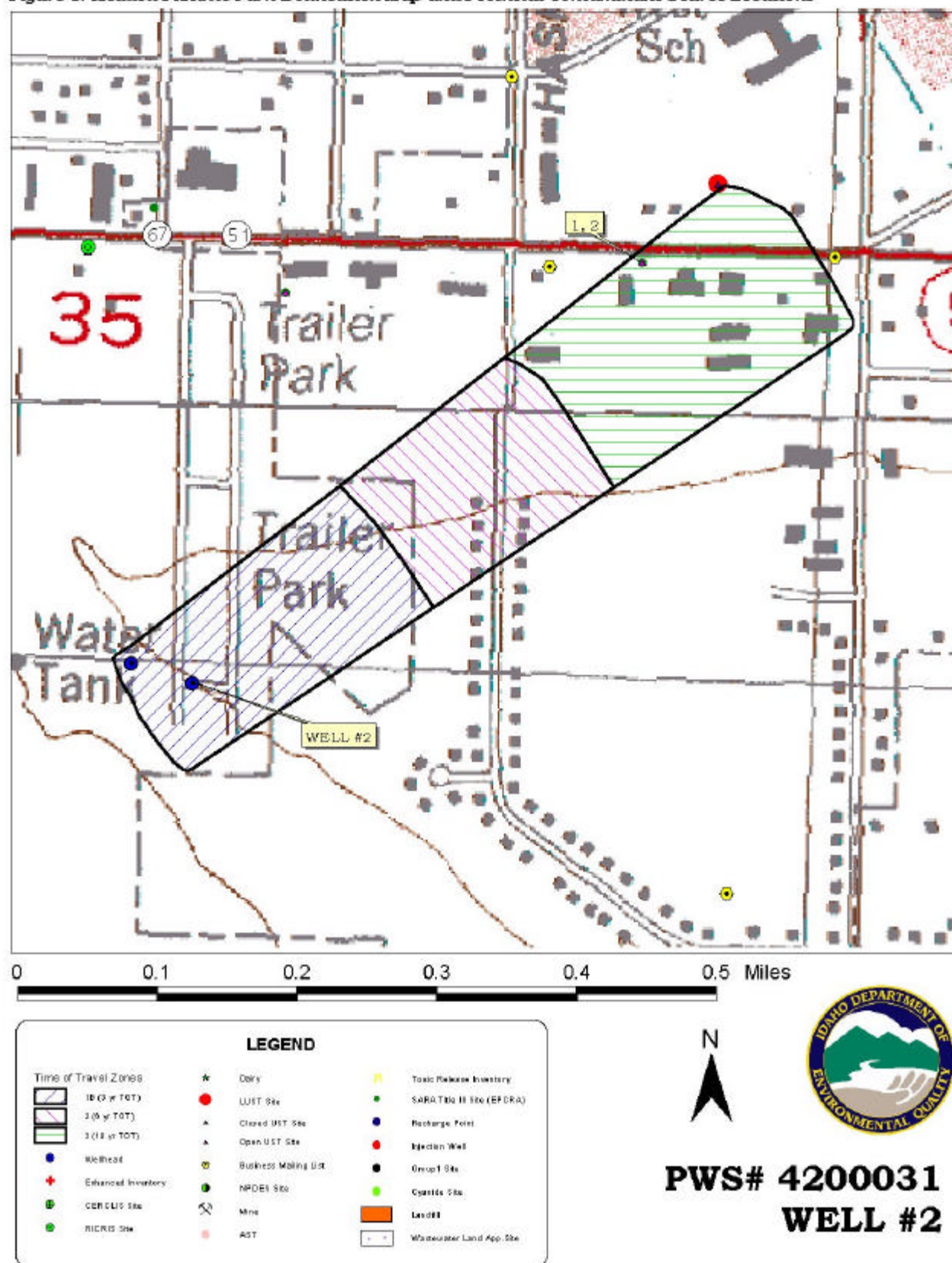


Table 1. Meadows Mobile Park Well #1, Potential Contaminant Inventory

SITE #	Source Description ¹	TOT Zone ² (years)	Source of Information	Potential Contaminants ³
1, 3	LUST - Site Cleanup Completed, Impact Unknown; UST - Closed	6 - 10	Database Search	VOC, SOC
2	UST - Open	6 - 10	Database Search	VOC, SOC
4	Plumbing Fixtures & Supplies - Wholesale	6 - 10	Database Search	IOC, VOC, SOC
5	SARA - Gasoline Service Station	6 - 10	Database Search	IOC, VOC, SOC
	Highway 67	6 - 10	GIS Map	IOC, VOC, SOC

¹ LUST = leaking underground storage tank, UST = underground storage tank, SARA = Superfund Amendments and Reauthorization Act

² TOT = time-of-travel (in years) for a potential contaminant to reach the wellhead

³ IOC = inorganic chemical, VOC = volatile organic chemical, SOC = synthetic organic chemical

Table 2. Meadows Mobile Park Well #2, Potential Contaminant Inventory

SITE #	Source Description ¹	TOT Zone ² (years)	Source of Information	Potential Contaminants ³
1	UST - Open	6 - 10	Database Search	VOC, SOC
2	SARA - Gasoline Service Station	6 - 10	Database Search	IOC, VOC, SOC
	Highway 67	6 - 10	GIS Map	IOC, VOC, SOC

¹ UST = underground storage tank, SARA = Superfund Amendments and Reauthorization Act

² TOT = time-of-travel (in years) for a potential contaminant to reach the wellhead

³ IOC = inorganic chemical, VOC = volatile organic chemical, SOC = synthetic organic chemical

Section 3. Susceptibility Analyses

Each well's susceptibility to contamination was ranked as high, moderate, or low risk according to the following considerations: hydrologic characteristics, physical integrity of the well, land use characteristics, and potentially significant contaminant sources. The susceptibility rankings are specific to a particular potential contaminant or category of contaminants. Therefore, a high susceptibility rating relative to one potential contaminant does not mean that the water system is at the same risk for all other potential contaminants. The relative ranking that is derived for each well is a qualitative, screening-level step that, in many cases, uses generalized assumptions and best professional judgement. Attachment A contains the susceptibility analysis worksheets. The following summaries describe the rationale for the susceptibility ranking.

Hydrologic Sensitivity

The hydrologic sensitivity rating of a well is dependent upon four factors: the surface soil composition, the material in the vadose zone (between the land surface and the water table), the depth to first ground water, and the presence of a 50-foot thick fine-grained zone above the producing zone of the well. Slowly draining soils such as silt and clay typically are more protective of ground water than coarse-grained soils such as sand and gravel. Similarly, fine-grained sediments in the subsurface and a water depth of more than 300 feet protect the ground water from contamination.

Hydrologic sensitivity is high for both wells of the Meadows Mobile Park (Table 3). The well logs indicate that the vadose zone is composed predominantly of lava and gravel layers. Furthermore, regional soils data indicate that the area is composed of moderate to well-drained soils. The first occurrence of ground water for both wells is found at approximately 40 feet below ground surface (bgs).

Well Construction

Well construction directly affects the ability of the well to protect the aquifer from contaminants. System construction scores are reduced when information shows that potential contaminants will have a more difficult time reaching the intake of the well. Lower scores imply a system is less vulnerable to contamination. For example, if the well casing and annular seal both extend into a low permeability unit, then the possibility of contamination is reduced and the system construction score goes down. If the highest production interval is more than 100 feet below the water table, then the system is considered to have better buffering capacity. If the wellhead and surface seal are maintained to standards, as outlined in sanitary surveys, then contamination down the well bore is less likely. If the well is protected from surface flooding and is outside the 100-year floodplain, then contamination from surface events is reduced. A sanitary survey was conducted in 1995.

Both wells have a moderate system construction score. The static water table is located at approximately 420 feet bgs for Well #1 and approximately 440 feet bgs for Well #2. Drilled in July 1989 to a total depth of 510 feet bgs, Well #1 has a 0.250-inch thick, 8-inch casing set to a depth of 54 feet bgs into “gray lava.” The annular seal was installed also to a depth of 54 feet bgs into “gray lava.” Well #1 is not screened. Well #2, drilled in 1976 to a total depth of 525 feet bgs, has a 0.250-inch thick, 6-inch casing set to a depth of 44 feet bgs into “gray lava.” The annular seal was also set to a depth of 44 feet bgs into “gray lava.” Well #2 is also not screened. The 1996 sanitary survey indicates that the wellhead and surface seals of both wells meet current standards and that both wells are properly protected from surface flooding.

The available well logs allowed a determination as to whether current public water system (PWS) construction standards are being met. Though the wells may have been in compliance with standards when they were completed, current PWS well construction standards are more stringent. The Idaho Department of Water Resources *Well Construction Standards Rules* (1993) require all PWSs to follow DEQ standards as well. IDAPA 58.01.08.550 requires that PWSs follow the *Recommended Standards for Water Works* (1997) during construction. Some of the regulations deal with screening requirements, aquifer pump tests, surface casing vent, and thickness of casing. Table 1 of the *Recommended Standards for Water Works* (1997) lists the required steel casing thickness for various diameter wells. Eight-inch diameter wells require a casing thickness of 0.322-inches and six-inch diameter wells require a casing thickness of 0.280-inches. As such, the wells were assessed an additional point in the system construction rating even though they may have met standards at the time of installation.

Potential Contaminant Source and Land Use

Both wells rate moderate for IOCs (i.e. nitrates, arsenic) and SOCs (i.e. pesticides), and rate low for microbial contaminants (i.e. bacteria). Well #1 rates moderate and Well #2 rates low for VOCs (i.e. petroleum products). The predominant land use within the area around the wells is a mixture of irrigated agriculture and urban, and the county has been rated as high for nitrogen fertilizer, herbicide and ag-chemical use. These land use characteristics contributed to the land use rating. Additionally, the contaminant sources surrounding the wells also contributed to this score.

Final Susceptibility Ranking

A detection above a drinking water standard MCL, any detection of a VOC or SOC, or a detection of total coliform bacteria or fecal coliform bacteria at the wellhead will automatically give a high susceptibility rating to a well despite the land use of the area because a pathway for contamination already exists. Additionally, storing potential contaminant sources within 50 feet of a wellhead will automatically lead to a high susceptibility rating. Hydrologic sensitivity and system construction scores are heavily weighted in the final scores. Having multiple potential contaminant sources in the 0- to 3-year time of travel zone (Zone 1B) and agricultural land contribute greatly to the overall ranking. In terms of total susceptibility, the Meadows Mobile Park wells rate high for IOCs, VOCs, SOCs and microbial contaminants.

Table 3. Summary of Meadows Mobile Park Susceptibility Evaluation

Well	Susceptibility Scores ¹									
	Hydrologic Sensitivity	Contaminant Inventory				System Construction	Final Susceptibility Ranking			
		IOC	VOC	SOC	Microbials		IOC	VOC	SOC	Microbials
Well #1	H	M	M	M	L	M	H	H	H	H
Well #2	H	M	L	M	L	M	H(*)	H*	H*	H*

¹H = High Susceptibility, M = Moderate Susceptibility, L = Low Susceptibility,

IOC = inorganic chemical, VOC = volatile organic chemical, SOC = synthetic organic chemical

* = Automatic high score due a road that lies within 50 feet of Well #2

(*) = Automatic high score due a road that lies within 50 feet of Well #2 and a high number of points

Susceptibility Summary

Both wells rated a high susceptibility to all potential contaminant categories. A road is located within 50 feet of Well #2, giving an automatic high susceptibility to all contaminant categories. The high hydrologic sensitivity score and the potential contaminant sources within the 3-year TOT of the delineation of Well #1 significantly contributed to its susceptibility ratings.

No current water chemistry problems exist for the wells of the Meadows Mobile Park. No SOCs or VOCs have been detected during any water chemistry tests for either of the wells. No coliform bacteria have been detected in either well. The IOCs chromium, fluoride, and nitrate have been detected, but at levels below the MCLs set by the U.S. EPA. However, the irrigated agricultural land has led to the area being rated as high for county level nitrogen fertilizer use, county level herbicide use, and total county level ag-chemical use.

Section 4. Options for Drinking Water Protection

The susceptibility assessment should be used as a basis for determining appropriate new protection measures or re-evaluating existing protection efforts. No matter what the susceptibility ranking a source receives, protection is always important. Whether the source is currently located in a “pristine” area or an area with numerous industrial and/or agricultural land uses that require surveillance, the way to ensure good water quality in the future is to act now to protect valuable water supply resources.

An effective drinking water protection program is tailored to the particular local drinking water protection area. A community with a fully developed drinking water protection program will incorporate many strategies. For the Meadows Mobile Park, drinking water protection activities should first focus on correcting any deficiencies outlined in the sanitary survey. No application or storage of herbicides, pesticides, or other chemicals is allowed within 50 feet of a public water system well. The Meadows Mobile Park may want to consider minimizing the use of the road that lies within 50 feet of Well #2 to avoid accidental spills or releases that may contaminate the ground water. Should microbial contamination become a problem, appropriate disinfection practices would need to be maintained for the system. Since the delineations underlie urban and residential land, storm water drainage may be an important consideration. Much of the designated protection areas are outside the direct jurisdiction of the Meadows Mobile Park, making collaboration and partnerships with state and local agencies and industry groups critical to the success of drinking water protection.

Due to the time involved with the movement of ground water, drinking water protection activities should be aimed at long-term management strategies even though these strategies may not yield results in the near term. A strong public education program should be a primary focus of any drinking water protection plan as the delineations contain some urban and residential land uses. There are multiple resources available to help communities implement protection programs, including the Drinking Water Academy of the U.S. EPA. As there is a transportation corridor (Highway 67) through the delineations, the Idaho Department of Transportation should be involved in protection activities. Drinking water protection activities for agriculture should be coordinated with the Idaho State Department of Agriculture, the Soil Conservation Commission, the Elmore Soil Conservation District, and the Natural Resources Conservation Service.

A community must incorporate a variety of strategies in order to develop a comprehensive drinking water protection plan, be they regulatory in nature (i.e. zoning, permitting) or non-regulatory in nature (i.e. good housekeeping, public education, specific best management practices). For assistance in developing protection strategies please contact the Boise Regional Office of the Idaho Department of Environmental Quality or the Idaho Rural Water Association.

Assistance

Public water supplies and others may call the following DEQ offices with questions about this assessment and to request assistance with developing and implementing a local protection plan. In addition, draft protection plans may be submitted to the DEQ office for preliminary review and comments.

Boise Regional DEQ Office (208) 373-0550

State DEQ Office (208) 373-0502

Website: <http://www2.state.id.us/deq>

Water suppliers serving fewer than 10,000 persons may contact John Bokor, Idaho Rural Water Association, at 1-800-962-3257 for assistance with drinking water protection (formerly wellhead protection) strategies.

POTENTIAL CONTAMINANT INVENTORY

LIST OF ACRONYMS AND DEFINITIONS

AST (Aboveground Storage Tanks) – Sites with aboveground storage tanks.

Business Mailing List – This list contains potential contaminant sites identified through a yellow pages database search of standard industry codes (SIC).

CERCLIS – This includes sites considered for listing under the **Comprehensive Environmental Response Compensation and Liability Act (CERCLA)**. CERCLA, more commonly known as ASuperfund, is designed to clean up hazardous waste sites that are on the national priority list (NPL).

Cyanide Site – DEQ permitted and known historical sites/facilities using cyanide.

Dairy – Sites included in the primary contaminant source inventory represent those facilities regulated by Idaho State Department of Agriculture (ISDA) and may range from a few head to several thousand head of milking cows.

Deep Injection Well – Injection wells regulated under the Idaho Department of Water Resources generally for the disposal of stormwater runoff or agricultural field drainage.

Enhanced Inventory – Enhanced inventory locations are potential contaminant source sites added by the water system. These can include new sites not captured during the primary contaminant inventory, or corrected locations for sites not properly located during the primary contaminant inventory. Enhanced inventory sites can also include miscellaneous sites added by the Idaho Department of Environmental Quality (DEQ) during the primary contaminant inventory.

Floodplain – This is a coverage of the 100-year floodplains.

Group 1 Sites – These are sites that show elevated levels of contaminants and are not within the priority one areas.

Inorganic Priority Area – Priority one areas where greater than 25% of the wells/springs show constituents higher than primary standards or other health standards.

Landfill – Areas of open and closed municipal and non-municipal landfills.

LUST (Leaking Underground Storage Tank) – Potential contaminant source sites associated with leaking underground storage tanks as regulated under RCRA.

Mines and Quarries – Mines and quarries permitted through the Idaho Department of Lands.)

Nitrate Priority Area – Area where greater than 25% of wells/springs show nitrate values above 5mg/l.

NPDES (National Pollutant Discharge Elimination System) – Sites with NPDES permits. The Clean Water Act requires that any discharge of a pollutant to waters of the United States from a point source must be authorized by an NPDES permit.

Organic Priority Areas – These are any areas where greater than 25 % of wells/springs show levels greater than 1% of the primary standard or other health standards.

Recharge Point – This includes active, proposed, and possible recharge sites on the Snake River Plain.

RICRIS – Site regulated under **Resource Conservation Recovery Act (RCRA)**. RCRA is commonly associated with the cradle to grave management approach for generation, storage, and disposal of hazardous wastes.

SARA Tier II (Superfund Amendments and Reauthorization Act Tier II Facilities) – These sites store certain types and amounts of hazardous materials and must be identified under the Community Right to Know Act.

Toxic Release Inventory (TRI) – The toxic release inventory list was developed as part of the Emergency Planning and Community Right to Know (Community Right to Know) Act passed in 1986. The Community Right to Know Act requires the reporting of any release of a chemical found on the TRI list.

UST (Underground Storage Tank) – Potential contaminant source sites associated with underground storage tanks regulated as regulated under RCRA.

Wastewater Land Applications Sites – These are areas where the land application of municipal or industrial wastewater is permitted by DEQ.

Wellheads – These are drinking water well locations regulated under the Safe Drinking Water Act. They are not treated as potential contaminant sources.

NOTE: Many of the potential contaminant sources were located using a geocoding program where mailing addresses are used to locate a facility. Field verification of potential contaminant sources is an important element of an enhanced inventory.

Where possible, a list of potential contaminant sites unable to be located with geocoding will be provided to water systems to determine if the potential contaminant sources are located within the source water assessment area.

References Cited

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Attachment A

Meadows Mobile Park Susceptibility Analysis Worksheets

The final scores for the susceptibility analysis were determined using the following formulas:

- 1) VOC/SOC/IOC Final Score = Hydrologic Sensitivity + System Construction + (Potential Contaminant/Land Use x 0.2)
- 2) 2) Microbial Final Score = Hydrologic Sensitivity + System Construction + (Potential Contaminant/Land Use x 0.375)

Final Susceptibility Scoring:

0 - 5 Low Susceptibility

6 - 12 Moderate Susceptibility

≥ 13 High Susceptibility

Ground Water Susceptibility Report

Public Water System Name :

MEADOWS MOBILE PARK

Well# : WELL #1

Public Water System Number 4200031

12/20/2001 10:37:38 AM

1. System Construction		SCORE			
Drill Date	3/1/1989				
Driller Log Available	YES				
Sanitary Survey (if yes, indicate date of last survey)	YES	1996			
Well meets IDWR construction standards	NO	1			
Wellhead and surface seal maintained	YES	0			
Casing and annular seal extend to low permeability unit	NO	2			
Highest production 100 feet below static water level	NO	1			
Well located outside the 100 year flood plain	YES	0			
Total System Construction Score		4			
2. Hydrologic Sensitivity					
Soils are poorly to moderately drained	NO	2			
Vadose zone composed of gravel, fractured rock or unknown	YES	1			
Depth to first water > 300 feet	NO	1			
Aquitard present with > 50 feet cumulative thickness	NO	2			
Total Hydrologic Score		6			
3. Potential Contaminant / Land Use - ZONE 1A		IOC Score	VOC Score	SOC Score	Microbial Score
Land Use Zone 1A	URBAN/COMMERCIAL	2	2	2	2
Farm chemical use high	NO	0	0	0	
IOC, VOC, SOC, or Microbial sources in Zone 1A	NO	NO	NO	NO	NO
Total Potential Contaminant Source/Land Use Score - Zone 1A		2	2	2	2
Potential Contaminant / Land Use - ZONE 1B					
Contaminant sources present (Number of Sources)	YES	2	2	2	2
(Score = # Sources X 2) 8 Points Maximum		4	4	4	4
Sources of Class II or III leacheable contaminants or	YES	6	2	2	
4 Points Maximum		4	2	2	
Zone 1B contains or intercepts a Group 1 Area	NO	0	0	0	0
Land use Zone 1B 25 to 50% Irrigated Agricultural Land		2	2	2	2
Total Potential Contaminant Source / Land Use Score - Zone 1B		10	8	8	6
Potential Contaminant / Land Use - ZONE II					
Contaminant Sources Present	NO	0	0	0	
Sources of Class II or III leacheable contaminants or	NO	0	0	0	
Land Use Zone II 25 to 50% Irrigated Agricultural Land		1	1	1	
Potential Contaminant Source / Land Use Score - Zone II		1	1	1	0
Potential Contaminant / Land Use - ZONE III					
Contaminant Source Present	YES	1	1	1	
Sources of Class II or III leacheable contaminants or	YES	1	1	1	
Is there irrigated agricultural lands that occupy > 50% of	NO	0	0	0	
Total Potential Contaminant Source / Land Use Score - Zone III		2	2	2	0
Cumulative Potential Contaminant / Land Use Score		15	13	13	8
4. Final Susceptibility Source Score		13	13	13	13
5. Final Well Ranking		High	High	High	High

1. System Construction	SCORE			
Drill Date	3/19/1976			
Driller Log Available	YES			
Sanitary Survey (if yes, indicate date of last survey)	YES	0		
Well meets IDWR construction standards	NO	1		
Wellhead and surface seal maintained	YES	0		
Casing and annular seal extend to low permeability unit	NO	2		
Highest production 100 feet below static water level	NO	1		
Well located outside the 100 year flood plain	YES	0		
Total System Construction Score		4		
2. Hydrologic Sensitivity				
Soils are poorly to moderately drained	NO	2		
Vadose zone composed of gravel, fractured rock or unknown	YES	1		
Depth to first water > 300 feet	NO	1		
Aquitard present with > 50 feet cumulative thickness	NO	2		
Total Hydrologic Score		6		
3. Potential Contaminant / Land Use - ZONE 1A	IOC Score	VOC Score	SOC Score	Microbial Score
Land Use Zone 1A	IRRIGATED CROPLAND	2	2	2
Farm chemical use high	YES	0	2	
IOC, VOC, SOC, or Microbial sources in Zone 1A	YES	YES	YES	YES
Total Potential Contaminant Source/Land Use Score - Zone 1A	4	2	4	2
Potential Contaminant / Land Use - ZONE 1B				
Contaminant sources present (Number of Sources)	NO	0	0	0
(Score = # Sources X 2) 8 Points Maximum		0	0	0
Sources of Class II or III leacheable contaminants or	YES	4	0	0
4 Points Maximum		4	0	0
Zone 1B contains or intercepts a Group 1 Area	NO	0	0	0
Land use Zone 1B Greater Than 50% Irrigated Agricultural Land		4	4	4
Total Potential Contaminant Source / Land Use Score - Zone 1B	8	4	4	4
Potential Contaminant / Land Use - ZONE II				
Contaminant Sources Present	NO	0	0	0
Sources of Class II or III leacheable contaminants or	NO	0	0	
Land Use Zone II 25 to 50% Irrigated Agricultural Land		1	1	
Potential Contaminant Source / Land Use Score - Zone II	1	1	1	0
Potential Contaminant / Land Use - ZONE III				
Contaminant Source Present	YES	1	1	1
Sources of Class II or III leacheable contaminants or	YES	1	1	1
Is there irrigated agricultural lands that occupy > 50% of	NO	0	0	
Total Potential Contaminant Source / Land Use Score - Zone III	2	2	2	0
Cumulative Potential Contaminant / Land Use Score	15	9	11	6
4. Final Susceptibility Source Score	13	12	12	12
5. Final Well Ranking	High	High	High	High